

COMPOSITE STACKING SEQUENCE OPTIMIZATION FOR MULTI-ZONED COMPOSITES

ABSTRACT OF THE DISCLOSURE

Method, apparatus, and computer program products are provided for optimizing a stacking sequence for a composite laminate having multiple zones to reduce the number or length of internal ply edges in the composite laminate with the most design rule compliant sequences. Once the number and location of the zones and the number of plies having different properties required for each zone have been determined for the composite laminate, a master zone is generated. Advantageously, the property of the plies may be fiber orientation, though alternative properties such as material may be considered when determining the number of required plies. The master zone notionally includes the maximum number of plies having a respective property required by any one zone, and the plies of the master zone are sequenced using a predefined series of design rules. The plies of each zone are then arranged based upon the stacking sequence of the master zone. A transformation matrix, a second predefined series of design rules, and a weighted solid/void differential may be used when arranging the plies of each zone based upon the stacking sequence of the master zone.

CLT01/4614230v2